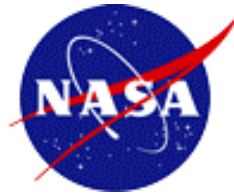


SECTION A.2

VASCULAR PLANTS OF LEWIS FIELD



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INTRODUCTION

The Ohio Department of Natural Resources (ODNR), Division of Natural Areas and Preserves conducted a botanical survey of the NASA Glenn Research Center (GRC) at Lewis Field in 1995 (ODNR 1996). During that survey, 159 species of vascular plants were cataloged, of which three were listed by the Division as Ohio rare species. One of these species, *Pycnanthemum muticum* (blunt mountain-mint), has since been removed from Ohio's list of rare plants.

Prior to the European settlement of the area, the Lewis Field area likely supported forest communities with oak-hickory species occupying the uplands and oak-maple-hemlock forests along the gorge of Abram Creek. Much of this natural vegetation was removed during settlement of the area and anthropogenic disturbance continues to this day with operation of GRC at Lewis Field. The gorge of Abram Creek and the bluffs above the valley contain the principal areas with remaining natural vegetation. A number of disturbed areas contain old-field vegetation. The remainder of Lewis Field contains building, roads, and landscaped areas.

SAIC and the Division of Natural Areas and Preserves were requested to undertake a follow up botanical survey in 2001. The goals of the 2001 survey were to update the vascular plant catalogue and to identify any new listed species. The species surveys complement the plant community survey and geographic information system (GIS) development that occurred concurrently with the species surveys.

METHODS

Botanical surveys were conducted from May through September 2001. Field work concentrated on the gorge, blufftops, and old fields. Survey efforts were directed by a dual goal. First, we attempted to locate new populations of the rare species that had been identified in 1995. In addition, we resurveyed the majority of the facility looking for new species to update the catalogue. Voucher specimens were collected during the 1995 survey and deposited in the herbarium of The Ohio State University, Columbus, Ohio. The new species located during 2001 are all very common species in Ohio. Therefore, additional voucher specimens were not collected.

RESULTS

The 1995 vascular plant catalogue contained 159 plants species. In 2001, 147 of the species found in 1995 were relocated and 8 new additions to the catalogue were made (Appendix 1.). The 1995 report lists three species of rare vascular plants: *Castanea dentata* (American chestnut), *P. muticum* (blunt mountain-mint), and *Vitis cinerea* (pigeon grape). In 1995, all three species were listed as "potentially threatened" in Ohio. This listing status is an indication of rarity rather than legal protection status. As indicated above, the observed abundance of *P. muticum* in Ohio has resulted in the Division of Natural Areas and Preserves removing it from the list of rare species in Ohio. In Environment and Archaeology's (1999) report on biotic communities at the adjacent

Cleveland Hopkins International Airport, it is reported that *P. muticum* was observed in a number of habitats at and near the airport. No additional populations of the three rare species were located at GRC in 2001. *C. dentata* is limited to a single individual at the edge of the wooded slope above the Rocky River (north of Building 500). *V. cinerea* is limited to several vines climbing on trees on the blufftop on the east side of Abram Creek south of Building 142. These locations are shown in Figure 1. No new listed species were identified during the 2001 survey.

The results of this survey demonstrate that the extensive development GRC as a research facility has limited the extent and recovery of natural plant communities. These communities contain few rare species. The Abram Creek gorge and adjacent blufftops contain the most significant natural plant communities. The plant communities shown in Figure 1 were identified during the plant community survey, and are described in Volume II of the *Protected Species Management Strategy*.

MANAGEMENT RECOMMENDATIONS

1. Disturbance of the plant communities within Abram Creek gorge and the adjacent blufftops should be avoided to the extent practicable. These areas constitute the most significant natural communities at the site.
2. The vines of the pigeon grape (*V. cinerea*) should remain undisturbed on the east side of the Abram Creek gorge.
3. Non-native species should not be planted at GRC. The natural areas within the facility do not have a serious non-native species problem at this time, but disturbed areas do contain a number of exotic weedy species. The limited area and mission requirements of GRC preclude significant restoration of the area.
4. No management is recommended for the American chestnut (*C. dentata*). The single individual at GRC has chestnut blight (*Endothia parasitica*) lesions and likely will die within a few years.
5. No management is recommended for the blunt mountain-mint (*P. muticum*). This species is sufficiently abundant in Ohio that ODNR has de-listed it.

REFERENCES

Environment and Archaeology, LLC. 1999. Final Report on Biotic Communities, Rare, Threatened, and Endangered Species, Cleveland Hopkins International Airport, Cuyahoga County, Ohio. Prepared for Landrum & Brown. August 30, 1999.

ODNR. 1996. Biological Inventory of the NASA Lewis Research Center, Brook Park, Ohio. ODNR, Division of Natural Areas and Preserves.